

Aquatic Life Criteria Table

Pollutant	CAS Number	Freshwater			Saltwater			Publication Year
		CMC ₁ P/NP* (acute) (µg/L)	CCC ₁ (chronic) (µg/L)		CMC ₁ (acute) (µg/L)	CCC ₁ (chronic) (µg/L)		
Acrolein	107028	P 3ug/L	3ug/L					2009
Aesthetic Qualities	—	NP	NARRATIVE STATEMENT— SEE DOCUMENT					1986
Aldrin	309002	P 3.0 G			1.3 G			1980
Alkalinity	—	NP		20000 C				1986
alpha-Endosulfan	959988	P 0.22 G, Y	0.056 G, Y		0.034 G, Y	0.0087 G, Y		1980
Aluminum pH 6.5 – 9.0	7429905	NP 750 I	87 I, S					1988
Ammonia	7664417	NP	FRESHWATER CRITERIA ARE pH, Temperature and Life-stage DEPENDENT SALTWATER CRITERIA ARE pH AND TEMPERATURE DEPENDENT					2013
Arsenic	7440382	P 340 A, D	150 A, D		69 A, D	36 A, D		1989
Bacteria	—	NP	FOR PRIMARY RECREATION AND SHELLFISH USES— SEE DOCUMENT					1986
beta-Endosulfan	33213659	P 0.22 G, Y	0.056 G, Y		0.034 G, Y	0.0087 G, Y		1980
Boron	—	NP	NARRATIVE STATEMENT— SEE DOCUMENT					1986
Carbaryl	63252	NP 2.1	2.1		1.6			2012
Cadmium	7440439	P 2.0 D, E	0.25 D, E		40 D	8.8 D		2001
Chlordane	57749	P 2.4 G	0.0043 G		0.09 G	0.004 G		1980
Chloride	16887006	NP 860000	230000					1986
Chlorine	7782505	NP 19	11		13	7.5		1986
Chloropyrifos	2921882	NP 0.083	0.041		0.011	0.0056		1986
Chromium (III)	16065831	P 570 D, E	74 D, E					1995
Chromium (VI)	18540299	P 16 D	11 D		1,100 D	50 D		1995
Color	—	NP	NARRATIVE STATEMENT— SEE DOCUMENT					1986

<u>Copper</u>	7440508	P	Freshwater criteria calculated using the BLM mm – See Document	4.8 D, cc	3.1 D, cc	2007	
<u>Cyanide</u>	57125	P	22 Q	5.2 Q	1 Q	1985	
<u>Demeton</u>	8065483	NP		0.1 C	0.1 C	1985	
<u>Diazinon</u>	333415	NP	0.17ug/L	0.17ug/L	0.82ug/L	0.82ug/L	2005
<u>Dieldrin</u>	60571	P	0.24	0.056 Q	0.71 G	0.0019 G	1995
<u>Endrin</u>	72208	P	0.086	0.036 Q	0.037 G	0.0023 G	1995
<u>gamma-BHC (Lindane)</u>	58899	P	0.95		0.16 G		1995
<u>Gases, Total Dissolved</u>	—	NP	NARRATIVE STATEMENT— SEE DOCUMENT C			1986	
<u>Guthion</u>	86500	NP		0.01 C	0.01 C	1986	
<u>Hardness</u>	—	NP	NARRATIVE STATEMENT— SEE DOCUMENT			1986	
<u>Heptachlor</u>	76448	P	0.52 G	0.0038 G	0.053 G	0.0036 G	1980
<u>Heptachlor Epoxide</u>	1024573	P	0.52 G, V	0.0038 G, V	0.053 G, V	0.0036 G, V	1981
<u>Iron</u>	7439896	NP		1000 C			1986
<u>Lead</u>	7439921	P	65 D, E	2.5 D, E	210 D	8.1 D	1980
<u>Malathion</u>	121755	NP		0.1 C	0.1 C	1986	
<u>Mercury</u>	7439976	P	1.4 D, hh	0.77 D, hh	1.8 D, ee, hh	0.94 D, ee, hh	1995
<u>Methylmercury</u>	22967926						
<u>Methoxychlor</u>	72435	NP		0.03 C	0.03 C	1986	
<u>Mirex</u>	2385855	NP		0.001 C	0.001 C	1986	
<u>Nickel</u>	7440020	P	470 D, E	52 D, E	74 D	8.2 D	1995
<u>Nonylphenol</u>	84852153	NP	28ug/L	6.6ug/L	7ug/L	1.7ug/L	2005
<u>Nutrients</u>	—	NP	See EPA's Ecoregional criteria for Total Phosphorus, Total Nitrogen, Chlorophyll <i>a</i> and Water Clarity (Secchi depth for lakes; turbidity for streams and rivers) (& Level III Ecoregional criteria)				
<u>Oil and Grease</u>	—	NP	NARRATIVE STATEMENT— SEE DOCUMENT C			1986	
<u>Oxygen, Dissolved</u>	7782447	NP	WARMWATER AND COLDWATER MATRIX— SEE DOCUMENT			1986	
<u>Freshwater</u>			SALTWATER— SEE DOCUMENT				

Oxygen, DissolvedSaltwater

<u>Parathion</u>	56382	NP	0.065 <u>I</u>	0.013 <u>I</u>			1995
<u>Pentachlorophenol</u>	87865	P	19 <u>E</u>	15 <u>E</u>	13	7.9	1995
<u>pH</u>	—	NP		6.5 – 9 <u>C</u>		6.5 – 8.5 <u>C, P</u>	1986
<u>Phosphorus Elemental</u>	7723140	NP					1986
Polychlorinated Biphenyls (PCBs)		P		0.014 <u>N</u>		0.03 <u>N</u>	
<u>Selenium</u>	7782492	P	<u>L, R</u>	5.0 <u>R</u>	290 <u>D, dd</u>	71 <u>D, dd</u>	1999
Silver	7440224	P	3.2 <u>D, E</u>		1.9 <u>D</u>		1980
<u>Solids Suspended and Turbidity</u>	—	NP	NARRATIVE STATEMENT— <u>SEE DOCUMENT C</u>				1986
<u>Sulfide–Hydrogen Sulfide</u>	7783064	NP		2.0 <u>C</u>		2.0 <u>C</u>	1986
<u>Tainting Substances</u>	—	NP	NARRATIVE STATEMENT— <u>SEE DOCUMENT</u>				1986
<u>Temperature</u>	—	NP	SPECIES DEPENDENT CRITERIA— <u>SEE DOCUMENT M</u>				1986
<u>Toxaphene</u>	8001352	P	0.73	0.0002	0.21	0.0002	1986
<u>Tributyltin (TBT)</u>	—	NP	0.46	0.072	0.42	0.0074	2004
<u>Zinc</u>	7440666	P	120 <u>D, E</u>	120 <u>D, E</u>	90 <u>D</u>	81 <u>D</u>	1995
<u>4,4'-DDT</u>	50293	P	1.1 <u>G, ii</u>	0.001 <u>G, ii</u>	0.13 <u>G, ii</u>	0.001 <u>G, ii</u>	1980

*P/NP – Indicates either a Priority Pollutant (P) or a Non Priority Pollutant (NP).

Footnotes

A This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive. Please consult the criteria document for details.

C The derivation of this value is presented in the [Red Book](#) (EPA 440/9-76-023, July, 1976). The CCC of 20mg/L is a minimum value except where alkalinity is naturally lower, in which case the criterion cannot be lower than 25% of the natural level.

D Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. See "[Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria \(PDF\)](#)," (49 pp, 3MB) October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available on [NSCEP's web site](#) and 40CFR§131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble– Conversion Factors for Dissolved Metals.

E The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 100 mg/L. Criteria values for other hardness may be calculated per the equation presented in the criteria document.

F Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH. Values displayed in table correspond to a pH of 7.8.

G This Criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: [Aldrin/Dieldrin \(PDF\)](#) (153 pp, 7.3MB) (EPA 440/5-80-019), [Chlordane \(PDF\)](#) (68 pp, 3.1MB) (EPA 440/5-80-027), [DDT \(PDF\)](#) (175 pp, 8.3MB) (EPA 440/5-80-038), [Endosulfan \(PDF\)](#) (155 pp, 7.3MB) (EPA 440/5-80-046), [Endrin \(PDF\)](#) (103 pp, 4.6MB) (EPA 440/5-80-047), [Heptachlor \(PDF\)](#) (114 pp, 5.4MB) (EPA 440/5-80-052), [Hexachlorocyclohexane \(PDF\)](#) (109 pp, 4.8MB) (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the [1985 Guidelines \(PDF\)](#) (104 pp, 3.3MB). If evaluation is to be done using an averaging period, the acute criteria values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

I This value for aluminum is expressed in terms of total recoverable metal in the water column.

J This value was derived using the GLI Guidelines (60 FR 15393–15399, March 23, 1995; 40CFR132 Appendix A); the differences between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. No decision concerning this criterion was affected by any considerations that are specific to the Great Lakes.

L The CMC = $1/[(f1/CMC1) + (f2/CMC2)]$ where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 ug/l and 12.82 ug/l, respectively. However, based on findings from a February 2009 SETAC Pellston Workshop on Ecological Assessment of Selenium in the Aquatic Environment, diet is the primary pathway of selenium exposure to

aquatic life, and traditional methods for predicting toxicity on the basis of exposure to dissolved concentrations are not appropriate for selenium. (To view a summary of the SETAC Pellston workshop including key findings visit http://www.setac.org/resource/resmgr/publications_and_resources/selsummary.pdf).

M U.S. EPA. 1973. Water Quality Criteria 1972. EPA-R3-73-033. National Technical Information Service, Springfield, VA.; U.S. EPA. 1977. Temperature Criteria for Freshwater Fish: Protocol and Procedures. EPA 600/3-77-061. National Technical Information Service, Springfield, VA.

N This criterion applies to total PCBs, (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses.)

O The derivation of the CCC for this pollutant (Endrin) did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.

P According to page 181 of the [Red Book](#):

For open ocean waters where the depth is substantially greater than the euphotic zone, the pH should not be changed more than 0.2 units from the naturally occurring variation or any case outside the range of 6.5 to 8.5. For shallow, highly productive coastal and estuarine areas where naturally occurring pH variations approach the lethal limits of some species, changes in pH should be avoided but in any case should not exceed the limits established for fresh water, i.e., 6.5–9.0.

Q This recommended water quality criterion is expressed as ug free cyanide (as CN)/L.

R EPA is in the process of updating this criterion to reflect the latest scientific information. As a result, this criterion might change substantially in the near future.

S There are three major reasons why the use of Water-Effect Ratios might be appropriate.

1. The value of 87 µg/l is based on a toxicity test with the striped bass in water with pH = 6.5–6.6 and hardness <10 mg/L. Data in "Aluminum Water-Effect Ratio for the 3M Plant Effluent Discharge, Middleway, West Virginia" (May 1994) indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time.
2. In tests with the brook trout at low pH and hardness, effects increased with increasing concentrations of total aluminum even though the concentration of dissolved aluminum was constant, indicating that total recoverable is a more appropriate measurement than

dissolved, at least when particulate aluminum is primarily aluminum hydroxide particles. In surface waters, however, the total recoverable procedure might measure aluminum associated with clay particles, which might be less toxic than aluminum associated with aluminum hydroxide.

3. EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 g aluminum/L, when either total recoverable or dissolved is measured.

V This value was derived from data for heptachlor and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.

Y This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.

cc When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate.

dd The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fishes in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 µg/L in salt water because the saltwater CCC does not take into account uptake via the food chain.

ee This recommended water quality criterion was derived on page 43 of the [mercury criteria document \(PDF\)](#) (144 pp, 6.4MB) (EPA 440/5-84-026, January 1985). The saltwater CCC of 0.025 ug/L given on page 23 of the criteria document is based on the Final Residue Value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60 FR 15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.

hh This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.

ii This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).

mm The available toxicity data, when evaluated using the procedures described in the “Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses” indicate that freshwater aquatic life should be protected if the 24-hour average and four-day average concentrations do not respectively exceed the acute and chronic criteria concentrations calculated by the Biotic Ligand Model.

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Human Health Criteria Table

Pollutant	CAS Number	Human Health for the consumption of		Publication Year
		P/NP*	Water + Organism (µg/L)	
Acenaphthene	83329	P	670 B, U	990 B, U 2002
Acrolein	107028	P	6 II	9 II 2009
Acrylonitrile	107131	P	0.051 B, C	0.25 B, C 2002
Aldrin	309002	P	0.000049 B, C	0.000050 B, C 2002
alpha-BHC	319846	P	0.0026 B, C	0.0049 B, C 2002
alpha-Endosulfan	959988	P	62 B	89 B 2002
Anthracene	120127	P	8,300 B	40,000 B 2002
Antimony	7440360	P	5.6 B	640 B 2002
Arsenic	7440382	P	0.018 C, M, S	0.14 C, M, S 1992
Asbestos	1332214	P	7 million fibers/L I	1991
Barium	7440393	NP	1,000 A	1986
Benzene	71432	P	2.2 B, C	51 B, C 2002
Benzidine	92875	P	0.000086 B, C	0.00020 B, C 2002
Benzo(a) Anthracene	56553	P	0.0038 B, C	0.018 B, C 2002
Benzo(a) Pyrene	50328	P	0.0038 B, C	0.018 B, C 2002

<u>Benzo(b) Fluoranthene</u>	205992	P	0.0038 B, C	0.018 B, C	2002
<u>Benzo(k) Fluoranthene</u>	207089	P	0.0038 B, C	0.018 B, C	2002
Beryllium	7440417	P	<u>Z</u>		
<u>beta-BHC</u>	319857	P	0.0091 B, C	0.017 B, C	2002
<u>beta-Endosulfan</u>	33213659	P	62 B	89 B	2002
<u>Bis(2-Chloroethyl) Ether</u>	111444	P	0.030 B, C	0.53 B, C	2002
<u>Bis(2-Chloroisopropyl) Ether</u>	108601	P	1,400 B	65,000 B	2002
<u>Bis(2-Ethylhexyl) Phthalate</u>	117817	P	1.2 B, C	2.2 B, C	2002
<u>Bromoform</u>	75252	P	4.3 B, C	140 B, C	2002
<u>Butylbenzyl Phthalate</u>	85687	P	1,500 B	1,900 B	2002
Cadmium	7440439	P	<u>Z</u>		
<u>Carbon Tetrachloride</u>	56235	P	0.23 B, C	1.6 B, C	2002
<u>Chlordane</u>	57749	P	0.00080 B, C	0.00081 B, C	2002
<u>Chlorobenzene</u>	108907	P	130 Z, U	1,600 U	2003
<u>Chlorodibromomethane</u>	124481	P	0.40 B, C	13 B, C	2002
<u>Chloroform</u>	67663	P	5.7 C, P	470 C, P	2002
<u>Chlorophenoxy Herbicide (2,4-D)</u>	94757	NP	100 Z		1986
Chromium (III)	16065831	P	<u>Z Total</u>		
Chromium (VI)	18540299	P	<u>Z Total</u>		
<u>Chrysene</u>	218019	P	0.0038 B, C	0.018 B, C	2002
<u>Copper</u>	7440508	P	1,300 U		1992
<u>Cyanide</u>	57125	P	140 jj	140 jj	2003
<u>Dibenzo(a,h)Anthracene</u>	53703	P	0.0038 B, C	0.018 B, C	2002
<u>Dichlorobromomethane</u>	75274	P	0.55 B, C	17 B,C	2002
<u>Dieldrin</u>	60571	P	0.000052 B, C	0.000054 B, C	2002
<u>Diethyl Phthalate</u>	84662	P	17,000 B	44,000 B	2002
<u>Dimethyl Phthalate</u>	131113	P	270,000	1,100,000	2002
<u>Di-n-Butyl Phthalate</u>	84742	P	2,000 B	4,500 B	2002

Dinitrophenols	25550587	NP	69	5300	2002
Endosulfan Sulfate	1031078	P	62 B	89 B	2002
Endrin	72208	P	0.059	0.060	2003
Endrin Aldehyde	7421934	P	0.29 B	0.30 B, H	2002
Ether, Bis(Chloromethyl)	542881	NP	0.00010 C	0.00029 C	2002
Ethylbenzene	100414	P	530	2,100	2003
Fluoranthene	206440	P	130 B	140 B	2002
Fluorene	86737	P	1,100 B	5,300 B	2002
gamma-BHC (Lindane)	58899	P	0.98	1.8	2003
Heptachlor	76448	P	0.000079 B, C	0.000079 B, C	2002
Heptachlor Epoxide	1024573	P	0.000039 B, C	0.000039 B, C	2002
Hexachlorobenzene	118741	P	0.00028 B, C	0.00029 B, C	2002
Hexachlorobutadiene	87683	P	0.44 B, C	18 B, C	2002
Hexachlorocyclo-hexane- Technical	608731		0.0123 H	0.0414 H	
Hexachlorocyclopentadiene	77474	P	40 U	1,100 U	2003
Hexachloroethane	67721	P	1.4 B, C	3.3 B, C	2002
Ideno(1,2,3-cd)Pyrene	193395	P	0.0038 B, C	0.018 B, C	2002
Isophorone	78591	P	35 B, C	960 B, C	2002
Manganese	7439965	NP	50 O	100 A	
Methylmercury	22967926	P		0.3 mg/kg I	2001
Methoxychlor	72435	NP	100 A, Z		1986
Methyl Bromide	74839	P	47 B	1,500 B	2002
Methylene Chloride	75092	P	4.6 B, C	590 B,C	2002
Nickel	7440020	P	610 B	4,600 B	1998
Nitrates	14797558	NP	10,000 A		1986
Nitrobenzene	98953	P	17 B	690 B, H, U	2002
Nitrosamines	—	NP	0.0008	1.24	1980
Nitrosodibutylamine, N	924163	NP	0.0063 C	0.22 C	2002

Nitrosodiethylamine, N	55185	NP	0.0008 C	1.24 C	2002
Nitrosopyrrolidine, N	930552	NP	0.016 C	34 C	2002
N-Nitrosodimethylamine	62759	P	0.00069 B, C	3.0 B, C	2002
N-Nitrosodi-n-Propylamine	621647	P	0.0050 B, C	0.51 B, C	2002
N-Nitrosodiphenylamine	86306	P	3.3 B, C	6.0 B, C	2002
See EPA's Ecoregional criteria for Total Phosphorus, Total Nitrogen, Chlorophyll <i>a</i> and Water Clarity (Secchi depth for lakes; turbidity for streams and rivers) (& Level III Ecoregional criteria)					
Nutrients	—	NP	Chlorophyll <i>a</i> and Water Clarity (Secchi depth for lakes; turbidity for streams and rivers) (& Level III Ecoregional criteria)		
Pathogen and Pathogen Indicators	—	See EPA's 2012 Recreational Water Quality Criteria			
Pentachlorobenzene	608935	NP	1.4 E	1.5 E	2002
Pentachlorophenol	87865	P	0.27 B, C	3.0 B, C, H	2002
pH	—	NP	5 – 9		1986
Phenol	108952	P	10,000 II, U	860,000 II, U	2009
Polychlorinated Biphenyls (PCBs)		P	0.000064 B, C, N	0.000064 B, C, N	2002
Pyrene	129000	P	830 B	4,000 B	2002
Selenium	7782492	P	170 Z	4200	2002
Solids Dissolved and Salinity	—	NP	250,000 A		1986
Tetrachlorobenzene,1,2,4,5-	95943	NP	0.97 B	1.1 B	2002
Tetrachloroethylene	127184	P	0.69 C	3.3 C	2002
Thallium	7440280	P	0.24	0.47	2003
Toluene	108883	P	1,300 Z	15,000	2003
Toxaphene	8001352	P	0.00028 B, C	0.00028 B, C	2002
Trichloroethylene	79016	P	2.5 C	30 C	2002
Trichlorophenol,2,4,5-	95954	NP	1,800 B	3,600 B	2002
Vinyl Chloride	75014	P	0.025 C, kk	2.4 C, kk	2003
Zinc	7440666	P	7,400 U	26,000 U	2002
1,1,1-Trichloroethane	71556	P	Z		

<u>1,1,2,2-Tetrachloroethane</u>	79345	P	0.17 B , C	4.0 B , C	2002
<u>1,1,2-Trichloroethane</u>	79005	P	0.59 B , C	16 B , C	2002
<u>1,1-Dichloroethylene</u>	75354	P	330	7,100	2003
<u>1,2,4-Trichlorobenzene</u>	120821	P	35	70	2003
<u>1,2-Dichlorobenzene</u>	95501	P	420	1,300	2003
1,2-Dichloroethane	107062	P	0.38 B , C	37 B , C	2002
<u>1,2-Dichloropropane</u>	78875	P	0.50 B , C	15 B , C	2002
<u>1,2-Diphenylhydrazine</u>	122667	P	0.036 B , C	0.20 B , C	2002
<u>1,2-Trans-Dichloroethylene</u>	156605	P	140 Z	10,000	2003
<u>1,3-Dichlorobenzene</u>	541731	P	320	960	2002
<u>1,3-Dichloropropene</u>	542756	P	0.34 C	21 C	2003
<u>1,4-Dichlorobenzene</u>	106467	P	63	190	2003
<u>2,3,7,8-TCDD (Dioxin)</u>	1746016	P	5.0E-9 C	5.1E-9 C	2002
<u>2,4,6-Trichlorophenol</u>	88062	P	1.4 B , C	2.4 B , C , U	2002
<u>2,4-Dichlorophenol</u>	120832	P	77 B , U	290 B , U	2002
<u>2,4-Dimethylphenol</u>	105679	P	380 B	850 B , U	2002
<u>2,4-Dinitrophenol</u>	51285	P	69 B	5,300 B	2002
<u>2,4-Dinitrotoluene</u>	121142	P	0.11 C	3.4 C	2002
<u>2-Chloronaphthalene</u>	91587	P	1,000 B	1,600 B	2002
<u>2-Chlorophenol</u>	95578	P	81 B , U	150 B , U	2002
<u>2-Methyl-4,6-Dinitrophenol</u>	534521	P	13	280	2002
<u>3,3'-Dichlorobenzidine</u>	91941	P	0.021 B , C	0.028 B , C	2002
3-Methyl-4-Chlorophenol	59507	P	U	U	
<u>4,4'-DDD</u>	72548	P	0.00031 B , C	0.00031 B , C	2002
<u>4,4'-DDE</u>	72559	P	0.00022 B , C	0.00022 B , C	2002
<u>4,4'-DDT</u>	50293	P	0.00022 B , C	0.00022 B , C	2002

*P/NP - Indicates either a Priority Pollutant (P) or a Non Priority Pollutant (NP).

Footnotes

A This human health criterion is the same as originally published in the Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value is now published in the [Gold Book](#).

B This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document used to derive the original criterion was retained in each case.

C This criterion is based on carcinogenicity of 10^{-6} risk. Alternate risk levels may be obtained by moving the decimal point (e.g., for a risk level of 10^{-5} , move the decimal point in the recommended criterion one place to the right).

D According to the procedures described in the *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, except possibly where a very sensitive species is important at a site, freshwater aquatic life should be protected if both conditions specified in Appendix C to the Preamble– Calculation of Freshwater Ammonia Criterion are satisfied.

F The derivation of this value is presented in the [Red Book](#) (EPA 440/9-76-023, July, 1976).

H No criterion for protection of human health from consumption of aquatic organisms excluding water was presented in the 1980 criteria document or in the *1986 Quality Criteria for Water*. Nevertheless, sufficient information was presented in the 1980 document to allow the calculation of a criterion, even though the results of such a calculation were not shown in the document.

I This criterion for asbestos is the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act (SDWA).

J This fish tissue residue criterion for methylmercury is based on a total fish consumption rate of 0.0175 kg/day.

M EPA is currently reassessing the criteria for arsenic.

N This criterion applies to total pcbs, (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses.)

O This criterion for manganese is not based on toxic effects, but rather is intended to minimize objectionable qualities such as laundry stains and objectionable tastes in beverages.

P Although a new RfD is available in IRIS, the surface water criteria will not be revised until the National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) is completed, since public comment on the relative source contribution (RSC) for chloroform is anticipated.

R U.S. EPA. 1973. Water Quality Criteria 1972. EPA-R3-73-033. National Technical Information Service, Springfield, VA.; U.S. EPA. 1977. Temperature Criteria for Freshwater Fish: Protocol and Procedures. EPA 600/3-77-061. National Technical Information Service, Springfield, VA.

S This recommended water quality criterion for arsenic refers to the inorganic form only.

T U.S. EPA. 1986. [Ambient Water Quality Criteria for Dissolved Oxygen](#). EPA 440/5-86-003. National Technical Information Service, Springfield, VA.

U The organoleptic effect criterion is more stringent than the value for priority toxic pollutants.

Z A more stringent Maximum Contaminant Level (MCL) has been issued by EPA under the Safe Drinking Water Act. Refer to drinking water regulations 40CFR141 or Safe Drinking Water Hotline (1-800-426-4791) for values.

jj This recommended water quality criterion is expressed as total cyanide, even though the IRIS RfD we used to derive the criterion is based on free cyanide. The multiple forms of cyanide that are present in ambient water have significant differences in toxicity due to their differing abilities to liberate the CN-moiety. Some complex cyanides require even more extreme conditions than refluxing with sulfuric acid to liberate the CN-moiety. Thus, these complex cyanides are expected to have little or no 'bioavailability' to humans. If a substantial fraction of the cyanide present in a water body is present in a complexed form (e.g., $\text{Fe}_4[\text{Fe}(\text{CN})_6]_3$), this criterion may be over conservative.

kk This recommended water quality criterion was derived using the cancer slope factor of 1.4 (LMS exposure from birth).

ll This criterion has been revised to reflect the Environmental Protection Agency's cancer slope factor (CSF) or reference dose (RfD), as contained in the Integrated Risk Information System (IRIS) as of (date of publication of Final FR Notice). The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.